Electric air heaters
HEA

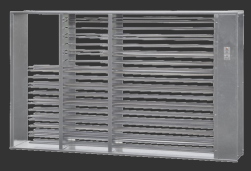
flex coil a/s
evapco
YOUR FLEXIBLE COIL PARTNER
SUBSIDIARY OF EVAPCO

USER MANUAL

ISO 9001 BUREAU VERITAS Certification

Version: 22. June 2010

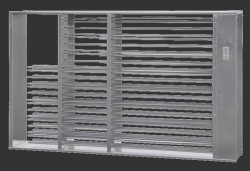
Flex coil a/s
Knøsgårdvej 115 | DK-9440 Aabybro
Tel.: +45 98 24 49 99 | Fax: +45 98 24 49 90
e-mail: flexcoil@flexcoil.dk | web: www.flexcoil.dk



INDEX **PAGE**

- **RECEIPT OF EQUIPMENT…….. 3**
- **LIFTING AND HANDLING……... 3**
- **INSTALLATION INSTRUCTIONS..... 4**
- **MAINTENANCE INSTRUCTIONS…… 5**
- **CONTROL OF INSULATION……... 6**
- **THERMOSTATS……. 7**
- **ADJUSTMENTS……...7**
- **WORKING CONDITIONS…….…….. 7**
- **SAFETY INSTRUCTIONS……..…….... 7**

Flex coil a/s
Knøsgårdvej 115 | DK-9440 Aabybro
Tel.: +45 98 24 49 99 | Fax: +45 98 24 49 90
e-mail: flexcoil@flexcoil.dk | web: www.flexcoil.dk



RECEIPT OF EQUIPMENT

Inspect carefully for transport damage.
Visible damage or deficiency should be notified to the carrier immediately and noted on the delivery note. The carrier's representative should confirm the note with his signature. Damage which is not visible upon delivery should be reported to the carrier as quickly as possible within seven days.

LIFTING AND HANDLING

Electrical duct heaters have frames with sharp edges and should only be handled by personnel wearing gloves. The heaters should always be installed in a way that minimizes contact by unauthorized personnel. Electrical duct heaters that cannot be lifted by hand are normally equipped with lifting lugs for easy lifting. Extremely large heaters must be lifted by straps and a lifting yoke. Care should be taken to avoid damaging the unit whilst being moved into its final location. Large heaters should be laid down during storage or at least, secured against overturn.

Flex coil a/s
Knøsgårdvej 115 | DK-9440 Aabybro
Tel.: +45 98 24 49 99 | Fax: +45 98 24 49 90
e-mail: flexcoil@flexcoil.dk | web: www.flexcoil.dk

INSTALLATION INSTRUCTIONS

- Electrical diagram is positioned inside the control box.
- See direction arrows for correct installation in air stream.
- The coil shall be installed to ensure easy change of heating element and ease of maintenance.
- Ducts in which the heating coil is mounted should be insulated and securely fastened with adequate heat resistant materials. Distance to inflammable items should be a minimum of 15 cm to avoid that during operation under unfavourable operational conditions, the items can not be heated to more than 80°C.
  The outside area of the control box must not be covered or insulated.
- Regarding installation instructions, please follow local/national regulations.
- Cable Glands must have equal or better enclosure class than the electric air heater.
- Circuit breaker or fuses should be sized to ensure that they activate prior to damageing the electrical supply lines, should there be a local short circuit. Always check local regulations.
- Overheating Thermostat and Fire Thermostat must be connected to the control current circuit.
- When the function of the thermostats is tested the fan shall be started as soon as possible after the thermostats have activated in order to dissipate heat and to avoid high surface temperatures on the elements.
- Heating Element must only operate with as an absolute minimum air velocity of 1,0 m/s through the heater.
- Check that Air flowrate is correct and that it is evenly distributed over the elements.
- After start-up the Terminal clamps shall be tightened.
- The motor/fan assembly in the system should run for min. 5 minutes after the heating elements have been switched off.
- Air filters must have a distance of min. 25 cm from the heating elements to avoid ignition.
- The Air filter must have an indicator showing when it is dirty and due for cleaning or replacement.
- Never run the coil without air filter installed.
- Never lift the coil by its heating elements.

Flex coil a/s
Knøsgårdvej 115 | DK-9440 Aabybro
Tel.: +45 98 24 49 99 | Fax: +45 98 24 49 90
e-mail: flexcoil@flexcoil.dk | web: www.flexcoil.dk

MAINTENANCE INSTRUCTIONS

It is important that the coils are regularly inspected for possible damage or operational problems.

In the case of damage, contact the supplier or direct to the factory. No repairs are to be made without our prior instruction. Electrical heating coils and their surroundings shall be kept clean at all times.

The following **INSPECTION** and control shall always be made:

1. Corrosion damage to framework and heating elements.
   - **Corrosion damage** to the framework (housing) can be caused by humidity or a corrosive atmosphere.

2. Burnt or damaged wiring.
   - **Burnt wiring** indicates abnormal operating conditions and damaged components. Power must be shut off at the main insulator as soon as possible and authorised personnel contacted.

3. Loose terminal clamp screws.
   - The **screws securing** the wiring in the terminal clamps can loosen with time. If this happens overheating and damage may occur. Therefore, regular inspection must be made to check that all screws are tightened correctly.

4. Insulation resistance.
   - There is a possibility that the **insulation resistance** will gradually decrease due to moist environments. This is a result of the magnesium oxide insulation absorbing moisture. It is important to test whether the insulation resistance is on an acceptable level or not, and also satisfies the requirements in DS/EN60335-1, or local national regulations. To avoid problems with the insulation resistance; **the coil must be energised, at least every week.**

For control and removal of moisture in the heating elements; follow the steps described in the following procedure:

Flex coil a/s
Knøsgårdvej 115 | DK-9440 Aabybro
Tel.: +45 98 24 49 99 | Fax: +45 98 24 49 90
e-mail: flexcoil@flexcoil.dk | web: www.flexcoil.dk

CONTROL OF INSULATION

The thermostats must be connected in order to avoid to high temperatures when testing, and **the process has to be monitored continuously.**

1. Energise the coil up to 30% of rated voltage for 2 min, and cool down. Repeat.
2. Energise the coil up to 30% of rated voltage for 5 min, and cool down. Repeat.
3. Energise the coil up to 30% of rated voltage for 15 min, and cool down. Repeat.
4. Energise the coil up to 30% of rated voltage for 30 min, and cool down.
5. Energise the coil up to 30% of rated voltage for 60 min, and cool down.
6. Repeat point 4, and if the electric heating coil still doesn't satisfy the requested resistance, continue the process.
7. Energise the coil up to 30% of rated voltage for 2 hours, and cool down.
8. Energise the coil up to 30% of rated voltage for 4 hours, and cool down.
9. Energise the coil up to 30% of rated voltage for 8 hours, and cool down.
10. If the insulation resistance still is unacceptable, please contact the supplier or factory.
11. If the elements do not heat check following:
    - Fuses are in order.
    - Thermostat(s) is correctly installed and functioning.
    - The fire thermostat in the coil is disconnected. Manual reset is situated in the control box, and can be reset when the heating element temperature is below approx. 145°C.
    - Tripped thermostats can result from unevenly distributed or reduced airflow, which can be caused by fan shut down, blocked filter or incorrect installation.

Flex coil a/s
Knøsgårdvej 115 | DK-9440 Aabybro
Tel.: +45 98 24 49 99 | Fax: +45 98 24 49 90
e-mail: flexcoil@flexcoil.dk | web: www.flexcoil.dk

THERMOSTATS

- Overheating thermostat (automatic). Type EGO 55.13211.010
- Adjustable: 27 - 80°C. Tolerances 4 to 6 K
- Fire thermostat (with reset). Set to: 130°C. Type EGO 55.13522.250
- The thermostats are mounted in the electric connection box with reset button on the outside of the box.
- The thermostats are compactly built and comprise:
- Overheating- and fire thermostat parts with the possibility of connecting an indicating lamp for each part. The overheating and fire thermostats each have a sensor mounted in the upper part of the coil.

ADJUSTMENTS

The overheating thermostat is factory preset, however, we suggest adjusting until the power cuts off (at max. power output of the coil), and then setting on a temperature of 8 - 12°C above this point. This will assure a fast response to abnormal temperatures.

WORKING CONDITIONS

OVERHEATING THERMOSTAT

When the temperature reaches the set temperature (adjustable between 27 - 80°C) the thermostat will switch off. As the temperature falls to about 15°C below adjusted temperature, the thermostat will automatically reset.

FIRE THERMOSTAT

When the temperature reaches 130°C, the thermostat (preset by manufacturer) will switch off. The reset button on the outside of the electric connection box can reset when the temperature of the element is below 110°C.

SAFETY INSTRUCTIONS

Electrical equipment may present hazards if not handled with care.

In order to minimise the risks associated with these hazards, it is essential to follow the Safety and installation instructions as well as the operation and maintenance instructions.

The heater shall be installed and maintained by an authorised electrician, ensuring a safe and reliable installation. All installation work must be completed in accordance with national regulations and standards.

Before any attempt is made to switch on the heater, the heater must be correctly earthed and no maintenance work attempted without first switching off, and isolating the heater and its controls from the electrical supply.

Contact **Flex coil a/s** or their agent/distributor, if you have any questions regarding the product.

Flex coil a/s
Knøsgårdvej 115 | DK-9440 Aabybro
Tel.: +45 98 24 49 99 | Fax: +45 98 24 49 90
e-mail: flexcoil@flexcoil.dk | web: www.flexcoil.dk